

No.

200400270



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

U. S. Government, as represented by the

Secretary of Agriculture

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC DEPOSIT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE APPLICANT(S) SHALL EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED IN THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

LENTIL

'Morton'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twenty-third day of May, in the year two thousand and seven.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture



U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER US Government as represented by the Secretary of Agriculture		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME LC9979010		3. VARIETY NAME Morton	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) USDA-ARS Grain Legume Genetics and Physiology Research Unit 303 Johnson Hall, Washington State University Pullman, WA 99164-6434		5. TELEPHONE (include area code) (509) 335-7647		FOR OFFICIAL USE ONLY PVPO NUMBER 200400270 FILING DATE July 2, 2004	
		6. FAX (include area code) (509) 335-7692			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) US Government		8. IF INCORPORATED, GIVE STATE OF INCORPORATION na		9. DATE OF INCORPORATION	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Fred J. Muehlbauer (Technical Representative of ARS), Research Geneticist, USDA-ARS, 303 Johnson Hall, Washington State University, Pullman, WA 99164-6434. Richard J. Brenner, Deputy Assistant Administrator, Office of Technology Transfer, 5601 Sunnyside Avenue, Room 4-1159, Beltsville, Maryland 20705-5131				FILING AND EXAMINATION FEES: \$ 3652.00 DATE 7/02/2004 CERTIFICATION FEE: \$ 768.00 DATE 5/08/2007	
11. TELEPHONE (Include area code) (509) 335-7647		12. FAX (Include area code) (509) 335-7692		13. E-MAIL muehlbau@wsu.edu	
14. CROP KIND (Common Name) Lentil		16. FAMILY NAME (Botanical) Leguminosae		18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.	
15. GENUS AND SPECIES NAME OF CROP Lens culinaris		17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) <i>usda release notice mar 2/22/2007</i> e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$3,652), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)				20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act) <input type="checkbox"/> YES (If "yes", answer items 21 and 22 below) <input checked="" type="checkbox"/> NO (If "no", go to item 23) <i>MAH 5/10/07</i> 21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED 22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)	
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)				24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER <i>Richard J. Brenner</i>		SIGNATURE OF OWNER	
NAME (Please print or type) Richard J. Brenner		NAME (Please print or type)	
CAPACITY OR TITLE Deputy Assistant Administrator	DATE 6/28/04	CAPACITY OR TITLE	DATE

(See reverse for instructions and information collection burden statement)

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$3,652 (\$432 filing fee and \$3,220 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvpo/pvpindex.htm>

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 <http://www.ams.usda.gov/lsg/seed.htm>.

ITEM

- 19a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See *Regulations and Rules of Practice*, Section 97.103).
23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

22. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

23. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

The date of first sale was September 25, 2003 from the Washington State Crop Improvement Association to the Moscow Idaho Seed Co. for the purpose of seed production.

24. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

Exhibit A as revised according to the request received July 26, 2006.

Exhibit A—Breeding History

Morton, selection number LC9979010, originated as an F₆ selection from progenies from the cross X92L043, which was a cross between two germplasm lines, WA8649090 and WA8649041 made by F.J. Muehlbauer in the greenhouse in 1992. WA8649090 (Crop Science Reg. No. GP-3, PI 547038) and WA8649041 (Crop Science Reg. No. GP-4, PI 547039) originated pure line selections from eight Plant Introductions from Turkey (PI 370629 through PI 370636). After an especially severe winter of 1984-1985, surviving plants from these accessions were bulk harvested and replanted in the fall of 1985, selections from that planting were further evaluated for winter survival in the 1986-87 winter season and based on nearly 100% survival WA8649090 and WA8649041 were retained for further evaluation and for release as improved germplasm. The cross that lead to the selection of **Morton** (LC9979010) was made as part of a research project partially supported by the International Center for Agricultural Research in the Dry Areas (ICARDA). That research project was designed to identify the genes for winter survival and tolerance to winter injury in lentil.

The cross (X92L043) that was used to develop **Morton** was made in the USDA-ARS greenhouse on the Washington State University Campus in the winter of 1992. The single seed descent (SSD) method was followed to develop a population of homozygous recombinant inbred lines (RILs) that could be used for evaluation and mapping of the genes for winter hardiness and tolerance to winter injury. A single F₁ seed from the cross (WA8649090/WA8649041) was planted in the greenhouse in the spring of 1992 as entry number L192-220-1 to produce the F₂ population. Following the SSD method, 121 F₂ seeds from the population were chosen at random and planted in the greenhouse in the winter of 1992 as entry L293-179. All F₂ plants were harvested individually and advanced, without selection for any trait, by SSD to the F₆. Advancement of the population from the F₂ to the F₆ was by the single seed descent method in which a single seed from each F₂ plant, without selection, is used to establish the next generation. The final result is a set of F₆ homozygous lines equal to the number of F₂ plants that were initially used. Therefore according to the procedure no selection was made for any trait during generation advance from the F₂ to the F₆. Selection was then performed on the resulting F₆ homozygous lines and in subsequent generations. For the development of this particular population, we used a combination of field plots and greenhouse plantings as follows: (1) F₂ individual plants from the cross of WA8649090/WA8649041 were grown in the greenhouse during the winter of 1993-94 and harvested. (2) The F₃ progenies were planted in the field in spring of 1994. Progeny row PU9469-967 led to the development of **Morton**. Other F₃ progeny rows from the same cross were grown in the same nursery and without selection. A single plant from the F₃ progeny row (PU9469-967) was harvested and a single F₄ seed from that plant was planted in the greenhouse in the fall of 1994 as entry L495-2879. The F₄ plant was harvested in the fall of 1995 and a single F₅ seed was planted in the greenhouse in the winter of 1996 as entry L596-1056. A single F₆ seed from the F₅ plant was planted in the greenhouse in the spring of 1996 as entry L696-

2505 to produce an F_6 derived RIL. The 121 F_6 derived RILs were increased in the field during the spring and summer of 1997 to produce sufficient seed for field evaluations over the winter of 1997-1998 at a location near Pullman, Washington and Haymana, Turkey.

Field evaluations of the populations of RILs that included the line that lead to **Morton** were conducted during the winters of 1997-1998, 1998-1999 and 1999-2000 at a single location near Pullman. The RIL identification number for Morton is LRIL-17-39; however, additional evaluations were conducted at Haymana, Turkey in 1997-1998 and at Haymana and Sivas, Turkey in 1998-1999 and 1999-2000. Based on good survival and acceptable agronomic traits, row number LC9979010 (**Morton**) was selected at Pullman after in the summer of 2000. The main criteria for selection of **Morton** (LC9979010) were winter survival of nearly 100% at all locations and years of testing. Selection for seed quality traits included a minimum size of 3.1 grams per 100 seeds and uniform beige seed coat color and red cotyledons.

Evaluations in replicated trials were conducted in subsequent seasons at Pullman, Washington, Genesee, Idaho and Rosalia, Washington during the winter seasons of 2000-2001, 2001-2002, and 2002-2003. For the evaluations, **Morton** was compared to the most winter hardy parent, WA8649041, for yield and winter hardiness. When averaged over locations and three years of testing, **Morton** out yielded WA8649041 by 68%. When compared to spring planted lentils, **Morton** planted in the fall out yielded spring planted lentil varieties by 108% and the best yielding spring lentil variety by 73%. This advantage for a winter hardy variety is derived from crop establishment in the fall and early spring growth when evapo-transpiration demand is minimal thus improving water-use-efficiency. Seed size of **Morton** is small and 100 seeds weigh 3.3 grams. Seed coats of **Morton** are beige and the cotyledons are red.

Morton was selected as an F_6 derived recombinant inbred line. Since that initial selection was made, Morton has been observed for six additional generations of reproduction and during the seed increase period and is considered stable and uniform; however, occasional yellow cotyledon variants have been observed. These variants appear in the frequency of less than 1 per 1000 seeds.

Exhibit B as revised according to the request received July 26, 2006.

Exhibit B—Statement of Distinctness

Morton is a winter hardy lentil that can be planted in the fall whereas other lentil varieties available in the U.S. are spring sown. This is the major distinction for this variety compared to others that are available. A comparison of Morton with 12 winter lentil selections and the source of winter hardiness, WA8649041, at two locations (Pullman, WA and Genesee, ID) in 2002, is presented in Table 1. Winter survival at both locations was nearly 100%. A comparison of Morton with the same 12 selections for yield in three years (2000, 2001 and 2002) is shown in Table 2. A comparison of Morton with 14 winter hardy selection and the source of winter hardiness, WA8649041, at Rosalia, WA and Genesee, ID in 2003, is shown in Tables 3 and 4. Morton was near the highest yielding selection from 2000 to 2003. When compared to 14 winter hardy selections at three locations (Genesee, ID, Pullman, WA, and Rosalia, WA) in 2004, Morton had the highest yields when averaged overall the locations that year.

Currently there are no winter hardy lentil varieties recommended for production in the U.S. and therefore the only comparisons that can be made are with spring sown lentil varieties that lack winter hardiness. The most appropriate comparison for Morton would be to Crimson which is also a small seeded red cotyledon lentil that is currently being used for decortivating (seedcoat removal) and splitting (separation of the cotyledons). However, Crimson is very susceptible to winter injury when planted in the fall and therefore cannot be fall planted.

A comparison of the winter hardy selections with one of the sources of winter hardiness, WA8649041, in 2004 indicated a significant advantage for Morton (Table 6). Also, at Moccasin, Montana in 2003, there was no difference between Morton and WA8649041 (Table 7); however, Morton was significantly higher yielding at that location.

When averaged over locations of testing, Morton averaged 3.3 grams/100 seeds as compared to 3.5 for Crimson and 3.0 for WA8649041. Seed size was a major selection criterion for selection of Morton. For small red lentils, the industry favors varieties with seed weights in the range of 3.1 to 3.6. Also, the shape of the seeds is important for decortivating and splitting. Relatively plump seeds with blunt edges are important for this process. Seed coat color is relatively unimportant for lentils that will be decorticated and split.

Seeds of Morton and Crimson have red cotyledons and the hilum of both varieties is clear.

When averaged over three years of testing, plants of Morton averaged 32 cm tall at maturity compared to 35 cm for WA8649041 (see tables 1, 3, and 5).

Statements of distinctness:

1. Morton has significantly better winter hardiness when compared to WA8649041 (the winter hardiness check). This trait was established through experiments at three locations over a three year period. However, differential survival was only obtained in 2004. At three locations in eastern Washington and northern Idaho in 2004, Morton

had significantly better survival [9.6 compared to 4.8 with an $LSD_{.05}$ of 1.4]. There was no difference at one of the locations of testing (Pullman) where there was minimal winter killing; but there were significant differences at Rosalia, Washington and Genesee, Idaho where there was differential winter killing (Table 6). *Winter hardiness was scored on a scale from 0=no survival to 10=100% survival.* There was no difference in winter survival at Mocassin, Montana in 2003 (Table 7). In other years of testing there was complete survival for both Morton and the winter hardiness check, WA8649041. Crimson could not be fall planted for comparison purposes because of a complete lack of winter hardiness.

2. Morton seeds are 0.2 grams per 100 seeds lighter when compared to Crimson. (Table 8). Crimson is the most similar from the standpoint of marketing traits.
3. Morton seeds are 0.4 mm smaller in diameter when compared to Crimson.
4. Morton is 5 cm shorter than WA8649041 at maximum height in the immature stage.
5. Morton is 3 cm shorter than WA8649041 when mature.

'Morton' is most similar to the variety 'Crimson'.

per original Exhibit B

MAH 4/24/2007

Table 1. Agronomic and Yield Data for the Advanced Red Cotyledon Winter Lentil Yield Trial, 2002.

Cultivar	Origin	Pods/ Peduncle	Pod Ht (green) ..cm..	Pod Ht (mature) ..cm..	Pod Ht Index	Plant Ht (green) ..cm..	Plant Ht (mature) ..cm..	Plant Ht Index	Weight 100 Seed ..g..	Seed Yld Pullman ..kg/ha..	Seed Yld Genesee ..kg/ha..	Seed Yld Mean ..kg/ha.
LC9979062	X92L043	3	9	10	1.00	31	30	0.97	3.4	1571	3900	2736
LC9979065	X92L043	3	13	9	0.73	31	27	0.89	3.2	1659	3739	2699
Morton	X92L043	3	13	10	0.77	31	25	0.84	3.3	1498	3816	2657
LC9979016	X92L043	3	13	13	0.99	37	34	0.87	3.1	1567	3658	2613
LC9979120	X92L043	3	11	9	0.86	33	25	0.89	2.8	1411	3175	2293
LC9978094	X92L040	3	16	13	0.83	38	22	0.61	3.4	1458	3038	2248
LC9976079	X92L035	2	12	10	0.88	33	29	0.88	3.6	1131	3283	2207
LC9978028	X92L040	2	13	9	0.72	36	28	0.81	2.9	1058	3331	2195
LC9978057	X92L040	3	11	8	0.76	33	23	0.75	3.4	1306	2862	2084
LC9440070	X92L001	2	12	11	0.90	31	30	0.87	5.7	1209	2955	2082
LC9440074	X92L001	2	16	8	0.50	37	30	0.76	4.5	1209	2778	1994
LC9976061	X92L035	2	13	10	0.77	31	26	0.90	3.5	1155	2812	1984
WA8649041-ck	-----	2	17	16	1.00	38	34	0.85	2.9	1097	2779	1938
LC9440072	X92L001	2	13	10	0.75	31	27	0.77	4.8	939	2906	1923
Grand Mean		3	13	10	0.82	34	28	0.83	3.6	1293	3217	2255
C.V. (%)										15	9	13
LSD ($\alpha=0.05$)										267	423	274
Planting date:										10/04/01	10/05/01	
Harvest date:										07/29/02	08/19/02	

Pod height was measured at the green pod stage and at harvest Maturity.

Pod height index was determined by dividing the pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity.

Plant height index was determined by dividing the canopy height at harvest maturity by the total plant height.

Agronomic data are means of three replications at Pullman, WA.

Yield data are means of three replications at Pullman, WA and Genesee, ID.

Table 2. Mean Yields (kg/ha) of Lines in the Advanced Red Cotyledon Winter Lentil Yield Trial, 1998 – 2002.

Selection	Cross No.	2000	2001	2002
LC9979062	X92L043	3636	2321	2736
LC9979065	X92L043	3361	3089	2699
Morton	X92L043	4118	2646	2657
LC9979016	X92L043	4244	2710	2613
LC9979120	X92L043	3996	2260	2293
LC9978094	X92L040	2509	2282	2248
LC9976079	X92L035	3232	1751	2207
LC9978028	X92L040	3733	2315	2195
LC9978057	X92L040	3277	1983	2084
LC9440070	X92L001	2756	2246	2082
LC9440074	X92L001	3592	2598	1994
LC9976061	X92L035	1887	1949	1984
WA8649041-check	-----	2000	1777	1938
LC9440072	X92L001	2812	2391	1923
Grand Mean		3063	2223	2255
LSD ($\alpha=0.05$)		651	467	274

Yield data are means of three replications at Pullman, WA.

Table 3. Agronomic and Yield Data for the Advanced Red Cotyledon Winter Lentil Yield Trial, 2003.

Cultivar	Origin	Pods/ Peduncle	Mean Pod	Pod Ht	Pod Ht	Mean Plant	Plant Ht	Plant Ht	Mean Stand Count	Weight 100 Seed Yld	Seed		
			Ht (green)	(mature)	Index	Ht (green)	(mature)	Index			Genesee	Rosalia	Seed Yld Mean
			..cm..	..cm..		..cm..	..cm..			..g..	.kg/ha.	.kg/ha.	.kg/ha.
LC9979065T	X92L043	2	17	11	0.80	37	38	0.94	16	3.3	2872	2798	2835
LC9978057T	X92L040	2	16	6	0.35	42	38	0.87	19	3.6	2693	2400	2546
Morton	X92L043	3	15	18	0.92	38	39	0.97	14	3.5	2489	2592	2540
LC9979062T	X92L043	2	21	11	0.61	42	36	0.82	18	3.7	2786	2030	2408
LC9979120T	X92L043	3	20	14	0.53	38	40	0.97	20	2.9	2400	2292	2346
LC9978094T	X92L040	2	23	3	0.22	44	34	0.76	18	3.3	2804	1796	2300
WA8649041(ck)	.....	3	23	18	0.73	47	42	0.86	16	3.2	1659	2157	1908
LC0160879c	X98L018	2	18	12	0.65	41	34	0.79	12	3.8	2083	1389	1736
LC9976079T	X92L035	2	18	14	0.78	41	39	0.88	15	...	2055	1286	1671
LC0160873c	X98L018	2	15	7	0.36	41	32	0.72	14	3.8	2009	1183	1596
LC0160869c	X98L018	3	16	6	0.27	39	27	0.65	11	3.7	1821	1304	1563
LC0160957T	X98L025	2	15	6	0.54	42	28	0.69	12	3.7	1974	1136	1555
LC0160872c	X98L018	3	15	6	0.45	40	30	0.68	16	3.6	1630	1370	1500
LC9440070r	X92L001	2	17	8	0.52	45	35	0.73	10	6.0	1407	1583	1495
LC0160887T	X97L095	3	17	10	0.47	42	38	0.87	15	4.0	1940	731	1336
LC0160641T	X97L084	3	16	9	0.40	43	38	0.89	13	4.7	1425	861	1143
Grand Mean		2	17	10	0.54	41	35	0.82	15	3.8	2128	1682	1905
C.V. (%)		22	18	35	42	7	13	14	22		15	13	14
LSD ($\alpha=0.05$)		1	4	5	0	4	6	0	4		432	306	311

Planting date Genesee 10/9/02. Harvest date Genesee 7/23/03. Planting date Rosalia 10/10/02. Harvest date Rosalia 7/31/03.

Pod height was measured at the green pod stage and at harvest maturity.

Pod height index was determined by dividing the pod height at harvest maturity by the green pod height at Rosalia.

Plant height was measured at the green pod stage and at harvest maturity.

Plant height index was determined by dividing the canopy height at harvest maturity by the total plant height at Rosalia.

Agronomic data are means of three replications at Rosalia, WA. Means data are means of three replications over two locations, Genesee, ID and Rosalia, WA.

Yield data are means of three replications at each location, across two locations.

Table 4. Location Yield Summary (kg/ha) for the Advanced Red Cotyledon Winter Lentil Yield Trial, 2004.

Cultivar	Origin	Genesee	Pullman	Rosalia	Mean Seed Yield
MORTON	X92L043	2041	2941	1239	2074
LC9979065T	X92L043	2026	2706	963	1898
LC9978057T	X92L040	2266	2108	1015	1796
LC9979062T	X92L043	1771	2447	920	1713
LC9979120T	X92L043	1871	2112	1118	1700
LC9976079T	X92L035	2026	1892	822	1580
WA8649041-Check	-----	1512	2202	878	1531
LC9440070r	X92L001	1998	1815	634	1482
LC9978094T	X92L040	1994	1626	699	1439
LC0160957T	X98L025	1872	852	877	1200
LC0160869c	X98L018	1973	281	1015	1090
LC0160873c	X98L018	2121	227	895	1081
LC0160641T	X97L084	1424	628	822	958
LC0160887T	X97L095	1835	432	601	956
LC0160872c	X98L018	1603	300	904	936
LC0160879c	X98L018	1846	0	1044	928
Grand Mean		1886	1404	903	1398
C.V. (%)		22	17	14	20
LSD ($\alpha=0.05$)		569	326	170	958
Planting Date		9/24/03	9/19/03	9/24/03	
Harvest Date		8/5/04	7/29/04	8/2/04	

Yield data are means of three replications at each location, over three locations.

Table 5. Agronomic Data for the Advanced Red Cotyledon Winter Lentil Yield Trial, 2004.

Cultivar	Origin	Mean Pods/ Peduncle	Mean Pod Ht (green) ..cm..	Mean Pod Ht (mature) ..cm..	Mean Pod Ht Index	Mean Plant Ht (green) ..cm..	Mean Plant Ht (mature) ..cm..	Mean Plant Ht Index	Mean Weight 100 Seed ..g..
MORTON	X92L043	3	22	11	0.58	50	31	0.62	3.1
LC9979065T	X92L043	2	24	13	0.58	48	32	0.69	2.7
LC9978057T	X92L040	3	19	10	0.53	46	26	0.51	2.3
LC9979062T	X92L043	3	21	12	0.60	52	35	0.66	2.7
LC9979120T	X92L043	3	19	9	0.60	47	31	0.72	3.0
LC9976079T	X92L035	2	20	12	0.69	52	35	0.70	3.2
WA8649041	(Check)	3	23	10	0.50	51	28	0.52	2.8
LC9440070r	X92L001	2	18	11	0.63	54	28	0.49	4.2
LC9978094T	X92L040	2	21	11	0.51	53	30	0.50	3.1
LC0160957T	X98L025	2	14	8	0.80	47	27	0.60	2.6
LC0160869c	X98L018	3	18	9	0.73	49	28	0.62	2.8
LC0160873c	X98L018	3	14	8	0.59	45	27	0.67	2.8
LC0160641T	X97L084	3	14	9	0.74	49	28	0.58	3.0
LC0160887T	X97L095	3	18	8	0.53	47	26	0.61	3.3
LC0160872c	X98L018	3	13	6	0.64	47	24	0.53	3.2
LC0160879c	X98L018	2	13	8	0.65	46	29	0.69	3.0
Grand Mean		2	18	10	0.62	49	29	0.61	3.0
C.V. (%)		18	27	31	39	10	16	17	21
LSD ($\alpha=0.05$)		1	8	3	0.30	9	6	0.19	1

Pod height was measured at the green pod stage and at harvest maturity.

Pod height index was determined by dividing the pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity.

Plant height index was determined by dividing the canopy height at harvest maturity by the total plant height.

Means data are means of three replications over two locations, Genesee, ID and Pullman, WA; means data for Pod Ht (mature) and Plant Ht (mature) are means of three replications over three locations, Genesee, ID, Pullman, WA and Rosalia, WA.

Table 6. Winter Hardiness scores¹ for lentils at three locations and overall for 2004 (0441F).

Cultivar	Genesee	Pullman	Rosalia	Overall Mean
LC9978094T	9.3	10.0	9.7	9.7
MORTON	9.8	10.0	9.0	9.6
LC9979065T	8.7	10.0	8.7	9.1
LC9976079T	9.3	9.7	8.0	9.0
LC9978057T	8.7	9.7	8.3	8.9
LC9979120T	9.3	10.0	7.0	8.8
LC9979062T	8.7	9.3	7.7	8.6
LC9440070r	7.7	8.3	6.3	7.4
LC0160887T	9.7	4.7	7.7	7.4
LC0160957T	7.7	5.3	5.7	6.2
LC0160879c	8.7	1.0	6.3	5.3
WA8649041	2.7	10.0	1.7	4.8
LC0160869c	8.7	2.0	3.3	4.7
LC0160873c	8.3	1.3	3.7	4.4
LC0160872c	7.8	1.3	3.3	4.1
LC0160641T	3.7	3.0	3.7	3.5
GRAND MEAN	8.0	6.6	6.3	7.0
CV	16.5	10.6	32.0	20.7
LSD	1.8	1.0	2.8	1.4

¹ Winter hardiness scored on a scale from 0 to 10 where 0 = no survival and 10 = 100% survival.

Table 7. 2003 Winter Lentil line evaluations at Moccasin
Data from Karnes Neill and Dave Wichman, Montana State University

Selection	Survival ^{1/} ...rating...	Yield ...lbs/acre...	Height ...cm...
LC9979065	4.7	1,097 ^a	30.0
LC9979010 (Morton)	4.6	1,031^a	28.0
LC9978057	4.8 ^{ns}	889 ^a	28.3
LC9979062	4.6	861	33.3
LC9979120	4.7	764	30.0
LC9976079	4.7	581	33.0
WA8649041 (Check)	4.6	328	36.0^a
LC9978094	4.4	147	36.3 ^a
Mean (n=24)	4.6	712	31.9
LSD (0.05 by t)	0.4	230	2.3
CV% (s/mean)	5.0	18.5	4.0
F-Value	0.59 ^{ns}	19.6	19.3

^{1/} - Visual observation of spring stand: 5 - no visible stand reduction (0% winter-kill); 3 - moderate stand reduction (50% winter-kill); 0 - complete stand reduction (100% winter-kill)

Table 8. Comparison of Morton with WA8649041 and Crimson lentils for seed weight (grams/100seeds) over six years of field trials (2001-2006) at Pullman, Washington.

Variety	2001	2002	2003	2004	2005	2006	Ave.
Morton	3.2	3.3	3.5	3.1	3.2	3.6	3.3
WA8649041	2.8	2.9	3.2	2.8	2.9	2.7	2.9
Crimson	3.7	3.5	3.5	3.6	3.3	3.2	3.5

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 2.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
Lentil (*Lens culinaris*)

NAME OF APPLICANT (S) Fred J. Muehlbauer	TEMPORARY OR EXPERIMENTAL DESIGNATION LC9979010	VARIETY NAME Morton
ADDRESS (Street and No. or RD No., City, State, Zip Code and Country) USDA-ARS-GLGP 303 Johnson Hall, WSU Pullman, WA 99164-6434		FOR OFFICIAL USE ONLY PVPO NUMBER 200400270

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g., 099 or 09) when the number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: _____ Please answer all questions for your variety; lack of response may delay progress of your application.

1. TYPE:

2 1 = Garden 2 = Field 3 = Edible-podded 4 = Other (Specify) _____

2. MATURITY:

19 Node Number of First Bloom: 293 No. of Days to Maturity
 No. of Days Earlier Than } 1 = Alaska 2 = Thomas Laxton WR 3 = Little Marvel
 Days Same As } 4 = Wando 5 = Alderman WR 6 = Australian Winter
 No. of Days Later Than } 7 = Other (Specify) _____

3. PLANT HEIGHT:

032 036 cm High *MAH 2/22/2007*
 cm Shorter Than Name of Check Cultivar _____
 Same As Same as Check Cultivar _____
04 cm Taller Than x Name of Check Cultivar Crimson

4. VINE:

2 Habit: 1 = Determinate 2 = Indeterminate 3 = Stockiness 1 = Slim (Alaska)
 2 = Medium (Thomas Laxton WR)
 3 = Heavy (Alderman)
3 Branching: 1 = None (Alaska) 2 = 1-2 Branches (Little Marvel) 3 = More than 2 Branches
1 Internodes: 1 = Straight 2 = Zig Zag Number of Nodes

15

5. LEAFLETS:

200400270

☐ 1 Color: 1 = Light Green 2 = Medium Green (Thomas Laxton WR) 3 = Dark Green (Alderman)
 4 = Other (Specify) _____ 5 = Blue Green 6 = Yellow Green 0 = Not Applicable

☐ 1 Wax 1 = None 2 = Light 3 = Medium ☐ 1 = Not Marbled 2 = Marbled (Alaska)
 4 = Heavy 0 = Not Applicable 0 = Not Applicable

☐ 4 Number of Leaflet Pairs: 1 = Not Paired 2 = One 3 = Two 4 = Six 0 = Not Applicable

☐ 3 Leaflet Type: 1 = Leafless 2 = Semi 3 = Normal

6. STIPULES:

☐ 2 1 = Lacking 2 = Present 1 = Not Clasping 2 = Clasping

☐ 1 1 = Not Marbled 2 = Marbled ☐ Size (Compared with Leaflets): 1 = Smaller 2 = Same 3 = Larger 0 = Not Applicable

☐ Color (Compared with Leaflets): 1 = Lighter 2 = Same 3 = Darker 0 = Not Applicable

☐ 1 Color: 1 = Light Green 2 = Medium Green 3 = Dark Green 4 = Blue Green 5 = Yellow Green 0 = Not Applicable
 Color Chart Value: _____ Select the Color Chart Used to Determine the Values:
 _____ Royal Horticulture Society Colour Chart
 _____ Munsell Color Chart
 _____ Other _____

☐ 1 Stipule Size: 1 = Small 2 = Medium 3 = Large

Please Provide Comparative Varieties (Check Varieties) and Stipule Color

	Variety (1)	Variety (2)	Variety (3)
Variety Name:	Crimson	Pardina	Brewer
Stipule Size:	Small	Small	Somewhat large
Color Chart Value:	Light green	Green	Green

7. FLOWER COLOR:

☐ 1 Venation ☐ 1 Standard ☐ 1 Wing ☐ 1 Keel

1 = White
 2 = Greenish
 3 = Lavender
 4 = Purple
 5 = Red
 6 = Other (Specify) _____

8. PODS:

☐ 1 Shape: 1 = Straight 2 = Slightly Curved 3 = Curved

☐ 2 End: 1 = Pointed (Alderman) 2 = Blunt (Brewer)

☐ 8 Color: 1 = Light Green (Alaska WR) 2 = Medium Green 3 = Dark Green (Alderman)
 4 = Other (Specify) _____ 5 = Blue 6 = Purple 7 = Yellow 8 = Tan with brown stripes

☐ 1 Surface: 1 = Smooth 2 = Rough ☐ 2 Surface: 1 = Shiny 2 = Dull

☐ 3 Borne: 1 = Single 2 = Double 3 = Single and Double 4 = Single, Double & Triple 5 = Double & Triple
 6 = Triple 7 = Other (Specify) _____ 8 = Quad, Single, Double, Triple 9 = Quad

☐ 1. 8 cm Length ☐ 0. 9 mm Width (Between Sutures) ☐ 0. 2 No. Seeds Per Pod

9. SEEDS:

☐ 4 Color: 1 = Light Green 2 = Green 3 = Dark Green 4 = Other (Specify) Beige
 5 = Yellow 6 = Brown 7 = Yellow Green

1 2 3 4 5 6 7 8 Mean Diameter (mm)

Seive: % ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 0 4. 1

☐ 1 Shape: 1 = Flattened 2 = Angular 3 = Oval 4 = Rounded

160

200400270

9. SEEDS: (continued)

<input type="text" value="1"/>	Surface:	1 = Smooth 3 = Wrinkled	2 = Dimpled	<input type="text" value="1"/>	Surface	1 = Shiny	2 = Dull																				
<input type="text" value="1"/>	Color Pattern:	1 = Monocolor	2 = Mottled	3 = Striped	4 = Dotted																						
<input type="text" value="14"/>	Primary Color	<table border="0"> <tr> <td>1 = Creamy White</td> <td>2 = Cream & Green</td> <td>3 = Light Green</td> <td>4 = Medium Green</td> </tr> <tr> <td>5 = Dark Green</td> <td>6 = Blue Green</td> <td>7 = Yellow</td> <td>8 = Brown</td> </tr> <tr> <td>9 = Red</td> <td>10 = Gray</td> <td>11 = Black</td> <td>12 = Salmon</td> </tr> <tr> <td>13 = Purple</td> <td>14 = Tan</td> <td>15 = White</td> <td>16 = Pink</td> </tr> <tr> <td>17 = Yellow Green</td> <td colspan="3"></td> </tr> </table>						1 = Creamy White	2 = Cream & Green	3 = Light Green	4 = Medium Green	5 = Dark Green	6 = Blue Green	7 = Yellow	8 = Brown	9 = Red	10 = Gray	11 = Black	12 = Salmon	13 = Purple	14 = Tan	15 = White	16 = Pink	17 = Yellow Green			
1 = Creamy White	2 = Cream & Green							3 = Light Green	4 = Medium Green																		
5 = Dark Green	6 = Blue Green							7 = Yellow	8 = Brown																		
9 = Red	10 = Gray	11 = Black	12 = Salmon																								
13 = Purple	14 = Tan	15 = White	16 = Pink																								
17 = Yellow Green																											
<input type="text"/>	Secondary Color:																										
<input type="text" value="1"/>	Hilum Floor Color:	1 = White	2 = Tan	3 = Black																							
<input type="text" value="3"/>	Cotyledon Color	1 = Green	2 = Yellow	3 = Orange	4 = Cream																						
<input type="text" value="3"/>	<input type="text" value="3"/>	Grams per 100 Seeds																									

10. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant, 3 = Moderately Resistant, 4 = Moderately Susceptible, 5 = Tolerant)

<input type="text" value="0"/>	Fusarium Wilt – Race 1	<input type="text"/>	Fusarium Wilt (Near Wilt) – Race 2
<input type="text" value="0"/>	Ascochyta Blight	<input type="text"/>	Common Mosaic
<input type="text"/>	Bacterial Blight	<input type="text"/>	Pea Enation Mosaic Virus
<input type="text"/>	Downy Mildew	<input type="text"/>	Seedborne Mosaic Virus
<input type="text"/>	Powdery Mildew	<input type="text"/>	Yellow Bean Mosaic Virus
<input type="text"/>	Other (Specify) _____	<input type="text"/>	Leaf Roll Virus
<input type="text"/>	Other (Specify) _____	<input type="text"/>	Other (Specify) _____

11. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant, 3 = Moderately Resistant, 4 = Moderately Susceptible, 5 = Tolerant)

<input type="text" value="0"/>	Aphids	<input type="text" value="0"/>	Other (Specify) _____
--------------------------------	--------	--------------------------------	-----------------------

12. Additional information on any item above, or general comments that may aid in identification:

Seed size is small and weighing 3.3 grams per 100 seeds. Seeds are uniformly devoid of mottling (pigmentation). Seeds are thick and have orange/red cotyledons. When fall planted Morton will establish a bushy plant with a rosette appearance; however, when planted in the spring, plants will assume a spring growth habit which is more upright and similar to non-winter hardy spring type varieties.

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Washington, D.C.

and

AGRICULTURAL RESEARCH CENTER
Washington State University
Pullman, Washington

and

IDAHO AGRICULTURAL EXPERIMENT STATION
University of Idaho
Moscow, Idaho

NOTICE OF RELEASE OF 'MORTON' WINTER HARDY LENTIL

The Agricultural Research Service of the United States Department of Agriculture, the Washington Agricultural Research Center, and the Idaho Agricultural Experiment Station announce the release and naming of a small-seeded red-cotyledon winter-hardy lentil (*Lens culinaris* Medik.), '**Morton**.' **Morton** was developed by the U.S. Department of Agriculture, Grain Legume Genetics and Physiology Research Unit located at Pullman, Washington, in cooperation with the College of Agriculture, Agricultural Research Center of Washington State University. **Morton**, selection LC9979010, originated as an F₆ selection from the cross of WA8649090/WA8649041 (cross number X92L043) made by F.J. Muehlbauer in 1992. WA8649090 and WA8649041 are germplasm lines developed and released by the U.S. Department of Agriculture Agricultural Research Service and registered in 1991. LC9979010 was developed by the single seed descent breeding method.

Morton was yield tested in eastern Washington and northern Idaho from 1999 to 2002. For the evaluations, **Morton** was compared to the most winter hardy parent, WA8649041, for yield and winter hardiness. When averaged over locations and three years of testing, **Morton** out yielded WA8649041 by 68%. When compared to spring planted lentils, **Morton** planted in the fall out yielded spring planted lentil varieties by 108% and the best yielding spring lentil variety by 73%. This advantage for a winter hardy variety is derived from crop establishment in the fall and early spring growth when evapo-transpiration demand is minimal thus improving water-use-efficiency. Seed size of **Morton** is small and 100 seeds weigh 3.3 grams. Seed coats of **Morton** are beige and the cotyledons are red.

Morton is recommended for fall planting directly into cereal stubble or with minimum tillage that retains most of the previous crop residue on the soil surface. **Morton** emerges in the fall and growth is curtailed by freezing winter temperatures. **Morton** resumes growth as temperatures

rise in late winter and early spring. Flowering commences in late May or early June and the plants and pods usually mature in late July. **Morton** has an upright plant growth habit that averages 31 cm (12.5 inches) tall. It is branched at the base and remains weakly upright at maturity.

Morton was named after Morton Swanson, a long time producer and supporter of the lentil industry in the Palouse region of eastern Washington and northern Idaho and a pioneer in the development and use of equipment for direct seeding into cereal stubble without tillage. The Washington State Crop Improvement Association will maintain breeder seed. Foundation seed will be available from the Washington State Crop Improvement Association, Washington State University, Pullman, Washington, 99164.

Release date for publicity purposes shall be effective on the date of final signature of the release notice.

Genetic material of this release will be deposited in the National Plant Germplasm System where it will be available for research purposes, including development and commercialization of new varieties/cultivars. The Agricultural Research Service of the United States Department of Agriculture will seek a Plant Variety Protection Certificate for **Morton** lentil.

It is requested that appropriate recognition be made if this germplasm contributes to the development of a new breeding line or cultivar.

Ralph P. Cavalieri
Director, Agricultural Research Center
Washington State University

January 12, 2004
Date

Bob H. H. H.
Director, Idaho Agricultural Experiment Station
University of Idaho

4/12/04
Date

Cathy E. Reynolds
Administrator, Agricultural Research Service
U.S. Department of Agriculture

5-12-04
Date

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) US Government as repesed by the Secretary of Agriculture	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER LC9979010	3. VARIETY NAME Morton
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) USDA-ARS Grain Legume Genetics and Physiology Research Unit 303 Johnson Hall, Washington State University Pullman, WA 99164-6434	5. TELEPHONE (Include area code) (509) 335-7647	6. FAX (Include area code) (509) 335-7692
	7. PVPO NUMBER 200400270	

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain.

☒

YES

☐

NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country.

☐

YES

☐

NO

n/a

10. Is the applicant the original owner?

☒

YES

☐

NO

If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐

YES

☐

NO

If no, give name of country

n/a

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☐

YES

☐

NO

If no, give name of country

n/a

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

Morton was bred by F.J. Muehlbauer, an employee of USDA-ARS. Rights have been assigned to the US Department of Agriculture as represented by the Secretary of Agriculture.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.